

Date: Wed, 27 Oct 93 04:30:35 PDT
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V93 #68
To: Ham-Space

Ham-Space Digest Wed, 27 Oct 93 Volume 93 : Issue 68

Today's Topics:

Generating keps
Help!
SAREX Keps & Update: 10/25/93
SAREX Rise-Set Times 10/26
STS-58 Keps: GSFC-025
STS-58 SAREX signal strength

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Tue, 26 Oct 1993 17:58:15 GMT
From: swrinde!cs.utexas.edu!math.ohio-state.edu!howland.reston.ans.net!
spool.mu.edu!agate!boulder!cnsnews!spot.Colorado.EDU!snyderg@network.ucsd.edu
Subject: Generating keps
To: ham-space@ucsd.edu

Keplarian elements are probably generated by Norad. Most stuff in orbit
is tracked by them occasionally. They maintain 'The Catalog' of most
observable stuff in orbit. Individual missions may be tracked by
assorted people interested in where the vehicles are. Additionally people
may transcribe one element set into other readable formats.

As for the actual tracking, its not that hard of concept. An initial
guess (like a propagated old element) is used to estimate where the
satellite should be at the time of an observation. Some sort of
measurement is made. This can be time of passage overhead, range and/or
range_rate from radar, or even satellite to satellite position/velocity

measurement. The estimated information is compared to the measured info and an error measurement is generated. The error is used to modify the estimated position. Through repeated measurements the estimated position (hopefully) converges to the true position.

The keplarian elements are a more convenient representation of the position, velocity, and time (state vector) of the satellite.

If you really want to know more say so. I've had several classes on the subject.

g.

Date: Tue, 26 Oct 1993 02:21:55 GMT
From: news.kpc.com!amd!netcomsv!netcom.com!fmitch@decwrl.dec.com
Subject: Help!
To: ham-space@ucsd.edu

J Paul Lesso (p92080@cplab.ph.ed.ac.uk) wrote:

: As an amateur astronomer I am finally trying my hand at radio astronomy.
: However since I cannot afford expensive equipment I would like to know about
: radio equipment that I can build myself (I am an electrical engineering student)
: and also about what I can tune into. Basically I don't know where to start and
: need a *LOT* of help. Any books available in Scotland and FTP sites etc. would
: help. I am building this for a group of people back home and any help what so
: ever would be most appreciated.

: TIA

: -----
: J Paul Lesso - Guru, aardvark trainer and Electronics engineer
: jpl@cybernet.cse.fau.edu JPL@ed.ac.uk Guru@ed.ac.uk
: ee2jpl@ug.ee.ed.ac.uk J.P.Lesso@ug.ee.ed.ac.uk
:
: "Moneyneck's my friend"

: -----
:
hi, mitch wa4osr here in mobile, alabama usa... you need to subscribe to
The Radio Observer magazine published by Robert M. (Bob) Sickels,
7605 Deland Ave., Ft. Pierce, Florida 34951 USA. This magazine is
"...devoted to the radio astronomy amateur..." and is a very good
source of low cost electronic circuits, antennas and ideas for the
amateur radio astronomer. Bob has been credited with discovering

several astronomical radio sources. It is not a fancy magazine but is a labor of love from a dedicated and talented amateur.

mitch

--
fmitch@netcom.com

Felton Mitchell, WA40SR in Mobile, Alabama USA
co-sysop for W4IAK bbs running fbb ... sysop for WA40SR DXCluster in Mobile..

Date: Tue, 26 Oct 1993 01:54:36 GMT
From: yeshua.marcam.com!zip.eecs.umich.edu!destroyer!nntp.cs.ubc.ca!unixg.ubc.ca!
kakwa.ucs.ualberta.ca!alberta!nebulus!ve6mgs!usenet@uunet.uu.net
Subject: SAREX Keps & Update: 10/25/93
To: ham-space@ucsd.edu

SB SAREX @ AMSAT \$STS-58.019
SAREX Keps & Update for 10/25/93

The SAREX school groups have completed another round of outstanding contacts the past few days. Today, the Nashua HS in Nashua, New Hampshire had an outstanding horizon-to-horizon contact. A total of 12 questions were answered by Astronaut Rick Searfoss who is from the "Granite State" of New Hampshire. On Sunday the Eastern Heights JHS, in Elyria, Ohio, the Ernest Elliot School in Munster, Indiana, and the Space Center Intermediate School in Houston, Texas all had superb contacts with the crew on the Space Shuttle Columbia. At the Space Center Intermediate School 19 students had the opportunity to talk to astronaut Bill McArthur, KC5ACR. This contact ties a SAREX record for the highest number of questions answered during a direct contact.

The above successful contacts have cleared three school group backup passes for possible general QSO opportunities. While we cannot fully guarantee availability, there is a high probability that the STS-58 crew will be ready and waiting to take general calls over the continental U.S. on these passes. These opportunities include passes on orbit 145 at MET 9 days 0 hours 6 minutes (10/27 at 14:59 UTC), orbit 178 at MET 11 days 1 hour 42 minutes (10/29 at 16:35 UTC) and orbit 192 at MET 11 days 22 hours and 29 minutes (10/30 at 13:22 UTC).

The following represents the official SAREX Keplerian element set for 10/25/93 as generated by Ron Parise, WA4SIR, of the Goddard Space Flight Center:

STS-58
1 22869U 93065A 93298.61712570 0.00112657 77536-5 20892-3 0 259

2 22869 39.0200 82.4277 0014476 28.5134 331.6466 16.00068904 1136

Satellite: STS-58

Catalog number: 22869

Epoch time: 93298.61712570 (25 OCT 93 14:48:39.66 UTC)

Element set: GSFC-025

Inclination: 39.0200 deg

RA of node: 82.4277 deg

Space Shuttle Flight STS-58

Eccentricity: 0.0014476

Keplerian Elements

Arg of perigee: 28.5134 deg

Mean anomaly: 331.6466 deg

Mean motion: 16.00068904 rev/day

Semi-major Axis: 6652.3600 Km

Decay rate: 0.11E-02 rev/day*2

Apogee Alt: 283.60 Km

Epoch rev: 113

Perigee Alt: 264.34 Km

NOTE - This element set is based on NORAD element set # 025.

The spacecraft has been propagated to the next ascending node, and the orbit number has been adjusted to bring it into agreement with the NASA numbering convention.

Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group

/EX

Date: Tue, 26 Oct 1993 02:01:52 GMT

From: sdd.hp.com!vixen.cso.uiuc.edu!howland.reston.ans.net!sol.ctr.columbia.edu!
destroyer!nntp.cs.ubc.ca!unixg.ubc.ca!kakwa.ucs.ualberta.ca!alberta!nebulus!

ve6mgs!usenet@network.ucsd.edu

Subject: SAREX Rise-Set Times 10/26

To: ham-space@ucsd.edu

SB SAREX @ AMSAT \$STS-58.020

STS-58 Eastern R/S Times 10/26

Below are the rise and set times for STS-58 for selected US cities over the next three days. This data was generated to help hams without orbit programs to participate in the SAREX activities. Please note that the times shown are UTC and NOT LOCAL TIME. This listing includes only those passes with an elevation greater than 5 degrees. For information regarding SAREX frequencies and operations procedures, check your local PBBS, or bulletins from W1AW, W5RRR, W6VIO or WA3NAN.

Symbol key: rise = time that shuttle appears above horizon

tca = time of closest approach to observer

set = time that shuttle disappears below horizon

el = maximum elevation above horizon
 geo = geometry: A = Ascending orbit, moving south to north
 D = Descending orbit, moving north to south
 E = passes east of observer
 W = passes west of observer

New York City

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	10:27:15	10:30:33	10:33	7	A-E	126
26Oct93	12:00:26	12:04:35	12:08	29	A-E	127
26Oct93	13:34:39	13:38:56	13:42	56	D-W	128
26Oct93	15:09:06	15:13:18	15:17	30	D-W	129
26Oct93	16:44:01	16:47:23	16:50	8	D-W	130
27Oct93	10:25:50	10:29:35	10:32	12	A-E	142
27Oct93	11:59:31	12:03:44	12:07	40	A-E	143
27Oct93	13:33:51	13:38:08	13:41	53	D-W	144
27Oct93	15:08:22	15:12:27	15:16	21	D-W	145
28Oct93	10:24:39	10:28:36	10:32	18	A-E	158
28Oct93	11:58:36	12:02:51	12:06	50	A-E	159
28Oct93	13:33:00	13:37:16	13:41	43	D-W	160
28Oct93	15:07:38	15:11:29	15:14	14	D-W	161

Washington D.C.

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	10:26:26	10:29:48	10:32	7	A-E	126
26Oct93	11:59:41	12:03:53	12:07	37	A-E	127
26Oct93	13:34:02	13:38:21	13:42	86	D-W	128
26Oct93	15:08:33	15:12:51	15:16	56	D-W	129
26Oct93	16:43:16	16:47:06	16:50	13	D-W	130
27Oct93	10:25:01	10:28:51	10:32	13	A-E	142
27Oct93	11:58:49	12:03:04	12:06	57	A-E	143
27Oct93	13:33:16	13:37:35	13:41	86	D-W	144
27Oct93	15:07:48	15:12:02	15:15	36	D-W	145
27Oct93	16:42:49	16:46:09	16:48	7	D-W	146
28Oct93	10:23:51	10:27:53	10:31	21	A-E	158
28Oct93	11:57:56	12:02:13	12:06	78	A-W	159
28Oct93	13:32:27	13:36:45	13:40	81	D-W	160

28Oct93 15:07:01 15:11:08 15:14 23 D-W 161

Atlanta, GA

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	10:24:07	10:27:41	10:30	9	A-E	126
26Oct93	11:57:38	12:01:54	12:05	87	A-W	127
26Oct93	13:32:30	13:36:37	13:40	24	A-W	128
26Oct93	15:07:23	15:11:33	15:15	25	D-E	129
26Oct93	16:41:54	16:46:15	16:50	78	D-W	130
26Oct93	18:16:57	18:20:28	18:23	9	D-W	131
27Oct93	10:22:50	10:26:46	10:30	18	A-E	142
27Oct93	11:56:54	12:01:09	12:04	49	A-W	143
27Oct93	13:31:54	13:35:59	13:39	21	D-W	144
27Oct93	15:06:39	15:10:53	15:14	32	D-E	145
27Oct93	16:41:11	16:45:26	16:49	37	D-W	146
28Oct93	10:21:40	10:25:50	10:29	35	A-E	158
28Oct93	11:56:11	12:00:23	12:04	32	A-W	159
28Oct93	13:31:11	13:35:17	13:38	21	D-E	160
28Oct93	15:05:49	15:10:06	15:13	49	D-E	161
28Oct93	16:40:29	16:44:31	16:48	19	D-W	162

Miami, FL

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	10:23:05	10:27:18	10:31	69	A-E	126
26Oct93	11:58:21	12:02:03	12:05	11	A-W	127
26Oct93	15:09:48	15:12:53	15:15	6	D-E	129
26Oct93	16:43:49	16:47:59	16:51	23	D-E	130
26Oct93	18:18:20	18:22:27	18:26	20	D-W	131
27Oct93	08:48:46	08:52:15	08:55	9	A-E	141
27Oct93	10:22:20	10:26:32	10:30	43	A-W	142
27Oct93	11:58:08	12:01:29	12:04	8	A-W	143
27Oct93	13:34:20	13:36:56	13:39	4	D-E	144
27Oct93	15:08:55	15:12:22	15:15	8	D-E	145
27Oct93	16:42:57	16:47:15	16:51	49	D-E	146
27Oct93	18:18:02	18:21:34	18:24	9	D-W	147
28Oct93	08:47:17	08:51:18	08:54	21	A-E	157

28Oct93	10:21:43	10:25:46	10:29	21	A-W	158
28Oct93	11:57:55	12:00:54	12:03	5	A-W	159
28Oct93	13:33:42	13:36:25	13:38	4	D-E	160
28Oct93	15:07:55	15:11:43	15:15	12	D-E	161
28Oct93	16:42:06	16:46:24	16:50	60	D-W	162

Compiled by Dan Schultz, N8FGV

Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group

Send comments to n8fgv@amsat.org

/EX

SB SAREX @ AMSAT \$STS-58.021

STS-58 Central R/S Times 10/26

Below are the rise and set times for STS-58 for selected US cities over the next three days. This data was generated to help hams without orbit programs to participate in the SAREX activities. Please note that the times shown are UTC and NOT LOCAL TIME. This listing includes only those passes with an elevation greater than 5 degrees. For information regarding SAREX frequencies and operations procedures, check your local PBBS, or bulletins from W1AW, W5RRR, W6VIO or WA3NAN.

Symbol key: rise = time that shuttle appears above horizon

tca = time of closest approach to observer

set = time that shuttle disappears below horizon

el = maximum elevation above horizon

geo = geometry: A = Ascending orbit, moving south to north
D = Descending orbit, moving north to south

E = passes east of observer

W = passes west of observer

Chicago, IL

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	11:58:26	12:02:10	12:05	11	A-E	127
26Oct93	13:32:06	13:36:17	13:39	33	A-E	128
26Oct93	15:06:22	15:10:37	15:14	38	D-W	129
26Oct93	16:40:54	16:44:50	16:48	16	D-W	130
27Oct93	11:57:19	12:01:14	12:04	17	A-E	143
27Oct93	13:31:13	13:35:27	13:39	39	D-E	144
27Oct93	15:05:34	15:09:47	15:13	31	D-W	145
27Oct93	16:40:17	16:43:54	16:47	10	D-W	146
28Oct93	10:23:17	10:26:18	10:28	6	A-E	158
28Oct93	11:56:12	12:00:17	12:03	23	A-E	159
28Oct93	13:30:19	13:34:34	13:38	41	D-W	160

28Oct93	15:04:44	15:08:51	15:12	23	D-W	161
28Oct93	16:39:47	16:42:51	16:45	6	D-W	162

Huntsville, AL

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	10:24:23	10:27:27	10:30	6	A-E	126
26Oct93	11:57:20	12:01:34	12:05	53	A-E	127
26Oct93	13:31:58	13:36:11	13:39	32	A-W	128
26Oct93	15:06:49	15:11:02	15:14	29	D-E	129
26Oct93	16:41:22	16:45:42	16:49	73	D-W	130
26Oct93	18:16:21	18:19:55	18:22	9	D-W	131
27Oct93	10:22:48	10:26:31	10:29	13	A-E	142
27Oct93	11:56:30	12:00:46	12:04	79	A-W	143
27Oct93	13:31:20	13:35:30	13:39	27	D-W	144
27Oct93	15:06:05	15:10:21	15:14	37	D-E	145
27Oct93	16:40:38	16:44:53	16:48	36	D-W	146
28Oct93	10:21:29	10:25:33	10:29	23	A-E	158
28Oct93	11:55:43	11:59:58	12:03	47	A-W	159
28Oct93	13:30:37	13:34:47	13:38	26	D-E	160
28Oct93	15:05:15	15:09:34	15:13	55	D-E	161
28Oct93	16:39:55	16:43:58	16:47	19	D-W	162

Houston, TX

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	10:22:14	10:25:07	10:27	5	A-E	126
26Oct93	11:55:01	11:59:16	12:03	74	A-E	127
26Oct93	13:30:05	13:34:00	13:37	16	A-W	128
26Oct93	15:05:34	15:09:10	15:12	10	D-E	129
26Oct93	16:40:15	16:44:18	16:47	18	D-E	130
26Oct93	18:14:35	18:18:58	18:22	54	D-W	131
27Oct93	10:20:30	10:24:11	10:27	12	A-E	142
27Oct93	11:54:16	11:58:30	12:02	47	A-W	143
27Oct93	13:29:39	13:33:24	13:36	12	A-W	144
27Oct93	15:04:57	15:08:37	15:11	10	D-E	145
27Oct93	16:39:26	16:43:38	16:47	27	D-E	146
27Oct93	18:13:59	18:18:08	18:21	24	D-W	147

28Oct93	10:19:09	10:23:14	10:26	25	A-E	158
28Oct93	11:53:37	11:57:44	12:01	25	A-W	159
28Oct93	13:29:09	13:32:46	13:35	10	A-W	160
28Oct93	15:04:11	15:07:59	15:11	12	D-E	161
28Oct93	16:38:33	16:42:51	16:46	52	D-E	162
28Oct93	18:13:27	18:17:11	18:20	12	D-W	163

Denver, CO (Seattle has been moved to the west coast bulletin)
 STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	13:28:46	13:32:50	13:36	23	A-E	128
26Oct93	15:02:53	15:07:10	15:10	70	A-E	129
26Oct93	16:37:21	16:41:39	16:45	57	D-W	130
26Oct93	18:11:58	18:15:56	18:19	16	D-W	131
27Oct93	11:54:30	11:57:54	12:00	8	A-E	143
27Oct93	13:27:47	13:31:58	13:35	35	A-E	144
27Oct93	15:02:06	15:06:24	15:10	77	D-W	145
27Oct93	16:36:35	16:40:51	16:44	41	D-W	146
27Oct93	18:11:24	18:15:00	18:18	10	D-W	147
28Oct93	11:53:08	11:56:53	12:00	13	A-E	159
28Oct93	13:26:50	13:31:05	13:34	50	A-E	160
28Oct93	15:01:15	15:05:33	15:09	73	D-W	161
28Oct93	16:35:46	16:39:56	16:43	27	D-W	162
28Oct93	18:11:00	18:13:58	18:16	5	D-W	163

Compiled by Dan Schultz, N8FGV
 Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group
 Send comments to n8fgv@amsat.org
 /EX
 SB SAREX @ AMSAT \$STS-58.022
 STS-58 Western R/S Times 10/26

Below are the rise and set times for STS-58 for selected US cities over the next three days. This data was generated to help hams without orbit programs to participate in the SAREX activities. Please note that the times shown are UTC and NOT LOCAL TIME. This listing includes only those passes with an elevation greater than 5 degrees. For information regarding SAREX frequencies and operations procedures, check your local PBBS, or bulletins from W1AW, W5RRR, W6VIO or WA3NAN.

Symbol key: rise = time that shuttle appears above horizon
 tca = time of closest approach to observer
 set = time that shuttle disappears below horizon

el = maximum elevation above horizon
 geo = geometry: A = Ascending orbit, moving south to north
 D = Descending orbit, moving north to south
 E = passes east of observer
 W = passes west of observer

Seattle, WA (Denver has been moved to the central US bulletin)
 STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	15:01:09	15:04:24	15:07	7	A-E	129
26Oct93	16:34:33	16:38:15	16:41	12	D-E	130
26Oct93	18:08:42	18:12:09	18:15	9	D-W	131
27Oct93	14:59:58	15:03:24	15:06	9	A-E	145
27Oct93	16:33:36	16:37:18	16:40	12	D-W	146
27Oct93	18:08:00	18:11:09	18:13	6	D-W	147
28Oct93	14:58:46	15:02:22	15:05	11	A-E	161
28Oct93	16:32:39	16:36:17	16:39	11	D-W	162

Albuquerque, NM
 STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	11:54:28	11:57:54	12:00	8	A-E	127
26Oct93	13:27:48	13:32:03	13:35	64	A-E	128
26Oct93	15:02:29	15:06:42	15:10	32	A-W	129
26Oct93	16:37:16	16:41:31	16:45	35	D-E	130
26Oct93	18:11:48	18:16:07	18:19	49	D-W	131
26Oct93	19:47:04	19:50:15	19:52	6	D-W	132
27Oct93	11:53:08	11:56:58	12:00	15	A-E	143
27Oct93	13:27:01	13:31:17	13:35	70	A-W	144
27Oct93	15:01:50	15:06:02	15:09	29	D-W	145
27Oct93	16:36:31	16:40:49	16:44	47	D-E	146
27Oct93	18:11:07	18:15:17	18:18	26	D-W	147
28Oct93	11:51:54	11:56:01	11:59	28	A-E	159
28Oct93	13:26:15	13:30:29	13:34	44	A-W	160
28Oct93	15:01:06	15:05:18	15:08	29	D-E	161
28Oct93	16:35:41	16:40:01	16:43	77	D-E	162
28Oct93	18:10:28	18:14:20	18:17	14	D-W	163

Los Angeles, CA

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	13:25:36	13:29:42	13:33	26	A-E	128
26Oct93	14:59:56	15:04:10	15:07	40	A-W	129
26Oct93	16:34:54	16:39:01	16:42	23	D-E	130
26Oct93	18:09:32	18:13:51	18:17	47	D-E	131
26Oct93	19:44:10	19:48:17	19:51	22	D-W	132
27Oct93	11:51:44	11:54:45	11:57	6	A-E	143
27Oct93	13:24:37	13:28:51	13:32	53	A-E	144
27Oct93	14:59:18	15:03:29	15:07	29	A-W	145
27Oct93	16:34:13	16:38:22	16:42	25	D-E	146
27Oct93	18:08:46	18:13:06	18:16	83	D-E	147
27Oct93	19:43:39	19:47:23	19:50	12	D-W	148
28Oct93	11:50:03	11:53:44	11:56	12	A-E	159
28Oct93	13:23:44	13:28:00	13:31	76	A-W	160
28Oct93	14:58:37	15:02:45	15:06	24	A-W	161
28Oct93	16:33:26	16:37:39	16:41	30	D-E	162
28Oct93	18:07:57	18:12:15	18:16	49	D-W	163
28Oct93	19:43:22	19:46:23	19:48	5	D-W	164

Honolulu, HI

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	00:22:03	00:26:08	00:29	18	D-W	119
26Oct93	14:50:18	14:54:31	14:58	50	A-E	129
26Oct93	16:25:39	16:29:11	16:32	9	A-W	130
26Oct93	21:13:04	21:16:05	21:18	5	D-E	133
26Oct93	22:46:37	22:51:00	22:54	45	D-E	134
27Oct93	00:21:53	00:25:15	00:28	8	D-W	135
27Oct93	13:16:23	13:19:28	13:22	6	A-E	144
27Oct93	14:49:30	14:53:43	14:57	50	A-W	145
27Oct93	16:25:41	16:28:37	16:31	5	A-W	146
27Oct93	21:11:53	21:15:31	21:18	9	D-E	149
27Oct93	22:45:50	22:50:12	22:54	59	D-W	150
28Oct93	13:14:39	13:18:31	13:21	15	A-E	160
28Oct93	14:48:54	14:52:56	14:56	21	A-W	161
28Oct93	21:10:49	21:14:48	21:18	17	D-E	165
28Oct93	22:45:10	22:49:18	22:52	21	D-W	166

Compiled by Dan Schultz, N8FGV

Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group

Send comments to n8fgv@amsat.org

/EX

SB SAREX @ AMSAT \$STS-58.023

STS-58 World R/S Times 10/26

Below are the rise and set times for STS-58 for selected worldwide cities over the next three days. This data was generated to help hams without orbit programs to participate in the SAREX activities. Please note that the times shown are UTC and NOT LOCAL TIME. This listing includes only those passes with an elevation greater than 5 degrees. For information regarding SAREX frequencies and operations procedures, check your local PBBS, or bulletins from W1AW, W5RRR, W6VIO or WA3NAN.

Symbol key: rise = time that shuttle appears above horizon

tca = time of closest approach to observer

set = time that shuttle disappears below horizon

el = maximum elevation above horizon

geo = geometry: A = Ascending orbit, moving south to north

D = Descending orbit, moving north to south

E = passes east of observer

W = passes west of observer

London, England

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	09:07:21	09:10:14	09:12	5	D-W	125
27Oct93	07:32:44	07:35:33	07:37	4	A-E	140
27Oct93	09:06:27	09:09:11	09:11	4	D-W	141
28Oct93	05:58:59	06:00:53	06:02	2	A-E	155
28Oct93	07:31:35	07:34:27	07:36	5	D-E	156

Paris, France

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	07:33:59	07:36:58	07:39	5	A-E	124
26Oct93	09:07:33	09:10:40	09:13	6	D-W	125
27Oct93	07:32:52	07:35:56	07:38	6	D-E	140

27Oct93	09:06:41	09:09:38	09:12	5	D-W	141
28Oct93	07:31:43	07:34:51	07:37	6	D-E	156
28Oct93	09:05:53	09:08:32	09:10	4	D-W	157

Tokyo, Japan

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	00:07:24	00:11:39	00:15	34	D-E	119
26Oct93	01:41:57	01:46:18	01:50	75	D-W	120
26Oct93	03:16:50	03:20:33	03:23	11	D-W	121
26Oct93	19:24:03	19:27:28	19:30	8	A-E	132
26Oct93	20:57:22	21:01:36	21:05	59	A-E	133
26Oct93	22:32:00	22:36:14	22:39	36	A-W	134
27Oct93	00:06:40	00:10:57	00:14	41	D-E	135
27Oct93	01:41:13	01:45:30	01:49	39	D-W	136
27Oct93	03:16:39	03:19:35	03:22	5	D-W	137
27Oct93	19:22:42	19:26:32	19:29	15	A-E	148
27Oct93	20:56:33	21:00:50	21:04	77	A-W	149
27Oct93	22:31:19	22:35:32	22:39	32	D-W	150
28Oct93	00:05:51	00:10:10	00:13	58	D-E	151
28Oct93	01:40:29	01:44:35	01:48	22	D-W	152
28Oct93	19:21:28	19:25:35	19:29	27	A-E	164
28Oct93	20:55:46	21:00:02	21:03	49	A-W	165
28Oct93	22:30:34	22:34:48	22:38	33	D-E	166

Sydney, Australia

STS-58 Element Set GSFC-27

date	rise	tca	set	el	geo	orbit
26Oct93	06:39:14	06:42:46	06:45	8	D-E	123
26Oct93	08:12:29	08:16:58	08:20	71	D-E	124
26Oct93	09:47:18	09:51:39	09:55	27	D-W	125
26Oct93	11:22:15	11:26:35	11:30	25	A-E	126
26Oct93	12:56:51	13:01:18	13:05	86	A-W	127
26Oct93	14:31:54	14:35:33	14:38	10	A-W	128
27Oct93	06:37:46	06:41:49	06:45	16	D-E	139
27Oct93	08:11:42	08:16:11	08:20	62	D-W	140
27Oct93	09:46:41	09:51:00	09:54	24	A-W	141
27Oct93	11:21:31	11:25:54	11:29	32	A-E	142

27Oct93	12:56:06	13:00:30	13:04	42	A-W	143
28Oct93	06:36:32	06:40:52	06:44	30	D-E	155
28Oct93	08:10:58	08:15:24	08:19	39	D-W	156
28Oct93	09:45:59	09:50:17	09:54	23	A-E	157
28Oct93	11:20:41	11:25:08	11:29	47	A-E	158
28Oct93	12:55:22	12:59:35	13:03	22	A-W	159

Compiled by Dan Schultz, N8FGV

Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group

Send comments to n8fgv@amsat.org

/EX

Date: Tue, 26 Oct 1993 19:09:55 GMT

From: swrindle!cs.utexas.edu!asuvax!ennews!mcdphx!schbbs!mothost!lmpsbbbs!
news@network.ucsd.edu
Subject: STS-58 Keps: GSFC-025
To: ham-space@ucsd.edu

STS-58 element set GSFC-025 (orbit 113)

STS-58

1	22869U	93065A	93298.61712570	0.00112657	77536-5	20892-3	0	259
2	22869	39.0200	82.4277	0014476	28.5134	331.6466	16.00068904	1136

Satellite: STS-58

Catalog number: 22869

Epoch time:	93298.61712570	(25 OCT 93 14:48:39.66 UTC)
Element set:	GSFC-025	
Inclination:	39.0200 deg	
RA of node:	82.4277 deg	Space Shuttle Flight STS-58
Eccentricity:	0.0014476	Keplerian Elements
Arg of perigee:	28.5134 deg	
Mean anomaly:	331.6466 deg	
Mean motion:	16.00068904 rev/day	Semi-major Axis: 6652.3600 Km
Decay rate:	0.11E-02 rev/day*2	Apogee Alt: 283.60 Km
Epoch rev:	113	Perigee Alt: 264.34 Km

NOTE - This element set is based on NORAD element set # 025.

The spacecraft has been propagated to the next ascending node, and the orbit number has been adjusted to bring it into agreement with the NASA numbering convention.

R.A. Parise, Goddard Space Flight Center

G.L.CARMAN

Date: Tue, 26 Oct 1993 08:31:23 GMT
From: swrinde!sdd.hp.com!spool.mu.edu!sol.ctr.columbia.edu!jabba.ess.harris.com!
news.ess.harris.com!su102w.ess.harris.com!jhobson@network.ucsd.edu
Subject: STS-58 SAREX signal strength
To: ham-space@ucsd.edu

In article <2ahfa0\$qj8@access.digex.net> cormackj@access.digex.net (John Cormack) writes:

>The ARRL newsletter stated the STS-58 SAREX experiment was putting out
>booming signals that give full quieting on HT's. This is not the case for
>several hams in the Reston, VA and Rockville, MD areas. I was able to hear
>the transmissions on Sat Oct 23 around 11:15 am EDT with a 2 meter
>vertical at 35feet and a Kenwood transceiver. The shuttle passed almost
>directly overhead at my location but the signal was very weak and barely
>above the noise but was usable to the KAM. It was listenable for about 5
>minutes of the 8 minutes the shuttle was 'visible' from my location. Where
>did the ARRL get this info about booming signals into HT's? I wish this
>were the case.

They didn't hear it from me, but could have. On Sunday morning at ~8, K?5AXA (I really did hear him, just can't remember the call) was "pinning" the LCD meter on my IC2SRA using a 5/8 wave antenna on my car. I heard him call CQ 3 or 4 times before working someone. I called him a few times on 144.95 and 144.97. Are they still using the same uplink frequencies as before? Do I remember them correctly (144.93, 144.95, 144.97)? Has anyone ever worked the Shuttle using other than high power and directional antennas?

Harv

:::::::::::::::::::
: Harv Hobson : Interests: Amateur Radio, : jhobson@su19f.ess.harris.com :
: WB4NPL : Barbershop Quarteting, : harris.jhobson@ic1d.harris.com :
: 407-727-6642 : Bible Study, Parenting :
: Palm Bay FL : :
:::::::::::::::::::

End of Ham-Space Digest V93 #68
